IN THE CLAIMS

This listing of the claims will replace all prior versions and listings of the claims in the Application.

Claim 1 (Original): Gyrolaser to measure the angular speed or the relative angular position according to a set rotation axis, comprising at least:

a ring-shaped optical cavity;

a solid-state amplifying medium;

a slaving device including at least a first optical assembly made up of a first nonreciprocal optical rotator and an optical element, said optical element being either a reciprocal optical rotator or a birefringent element, with at least one of the effects or the birefringence being adjustable;

a measuring instrument;

a second optical assembly made up of a first spatial filtering device and of a first polarization separation optical element;

a third optical assembly made up of a second spatial filtering device and of a second polarization separation optical element, the second and third optical assemblies being located at either side of the first optical assembly, each symmetrical to the other;

a fourth optical assembly made up successively of a first quarter waveplate, a second nonreciprocal optic

such that a first linearly polarized propagation mode and a second propagation mode polarized linearly perpendicular to the first, can propagate in a first direction in the cavity, and a third propagation mode polarized linearly parallel to the first mode and a fourth propagation mode polarized linearly parallel to the second mode can propagate in the opposite direction in the cavity, with the main axes of the first quarter waveplate and the second quarter waveplate tilted 45 degree relative to the linear polarization directions of the four propagation modes, and the optical frequencies of the four modes all being different.

Claim 2 (Original): Gyrolaser according to claim 1, wherein the cavity comprises a birefringent retardation plate, which helps induce or increase a frequency difference between the orthogonal polarization states.

Claim 3 (Original): Gyrolaser according to claim 1, wherein the measuring instrument comprises:

optical devices to make on the one hand the first propagation mode interfere with the third, and on the other, the second interfere with the fourth;

opto-electronic devices to determine on the one hand, a first optical frequency difference between the first propagation mode and the third, and on the other, a second frequency difference between the second propagation mode and the fourth;

electronic devices to obtain the frequency difference between the above first frequency difference and the above second frequency difference.

Claim 4 (Original): Gyrolaser according to claim 3, wherein the first frequency difference and the second frequency difference are greater than approximately one hundred kilohertz.

Claim 5 (Original): Gyrolaser according to claim 1, wherein the first optical element and the second polarization separation optical element are uniaxial birefringent retardation plates with flat, parallel sides, the optical axis being tilted approximately 45 degrees relative to the plane of the sides.

Claim 6 (Original): Gyrolaser according to claim 1, wherein the slaving device comprises at least a fifth optical assembly made up of a third nonreciprocal optical rotator and of a second optical element, the said optical element being either a reciprocal optical rotator, or a birefringent element, with at least one of the effects or the birefringence being adjustable and adjusted independently of the first optical assembly; the first propagation mode and the third propagation mode passing through the first nonreciprocal optical rotator and the first optical element, the third propagation mode and the fourth propagation mode passing through the third nonreciprocal optical rotator and the second optical element.

Claim 7 (Original): Gyrolaser according to claim 1, wherein the cavity comprises an optical standard type Fabry-Perot.

Claim 8 (Currently Amended): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to ~~one of the above claims~~ claim 1, oriented in different directions and mounted on a common mechanical structure.

Claim 9 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 2, oriented in different directions and mounted on a common mechanical structure.

Claim 10 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 3, oriented in different directions and mounted on a common mechanical structure.

Claim 11 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 4, oriented in different directions and mounted on a common mechanical structure.

Claim 12 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 5, oriented in different directions and mounted on a common mechanical structure.

Claim 13 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 6, oriented in different directions and mounted on a common mechanical structure.

Claim 14 (New): System to measure the angular speeds or relative angular positions along three different axes, comprising three gyrolasers according to claim 7, oriented in different directions and mounted on a common mechanical structure.